setting remains still controversial, despite the large consensus as a promising candidate to become a biomarker that could further improve application and efficacy of radiation therapy (RT) in head and neck squamous cell carcinoma (HNSCC). Moreover, most of the studies refer to series of patients who underwent RT alone or in combination with Cetuximab. We performed a retrospective analysis on the prognostic value of EGFR expression in HNSCC treated with surgery and postoperative RT.

Material and Methods: We analyzed 69 patients with an histological diagnosis of HNSCC who underwent adjuvant RT after surgery in our Institute from 1997 to 2003. A 3D conformal RT was delivered with a 6MV accelerator using a conventional fractionation (median 60 Gy, range 34.2-70 Gy) Median follow-up was 3.73 years (range 0.17-12.25 ys). None of these patients were treated with postoperative concomitant chemotherapy. Tumor samples used for the determination of EGFR were obtained from surgical specimens. Membrane features (intensity, extension, distribution) and percentage of EGFR expression were evaluated and a statistical analysis (univariate) was conducted to correlate these parameters with Overall Survival (OS) and Disease Free survival (DFS).

Results: EGFR was overexpressed in 45,5% of our patients (median value used as threshold). No significant correlation (p value= 0.90) has been found between patients with an overexpression of EGFR and OS or DFS. Among patients with laryngeal carcinoma, those with overexpressed EGFR have showed a lower OS (not statistically significant) and DFS (p=0.05). Considering separately the membrane features, the intensity of the EGFR staining has been found statistically correlated with both OS (p= 0.03) and DSF (p=0.001). Moreover, a stratification of patients was performed combining extension and intensity of EGFR immunolabelling in tumour cell membranes, and their distribution following a three-point score: patients with 3+ score (intense and complete labelling and patchy distribution) presented the lowest OS and DFS and the difference was highly significant for both OS and DFS (p= < 0.0001). The same result was observed in the subgroup of patients with a diagnosis of larynx carcinoma.

Conclusion: Based on our results it is still reasonable that the analysis of EGFR expression, especially referring to membrane features, might be a prognostic value for OS and DFS in locally advanced HNSCC treated with adjuvant RT. A clinical validation in prospective trials of the suggested three-point score system could be useful to select patients with worse prognosis that might benefit from more aggressive treatments.

EP-1086

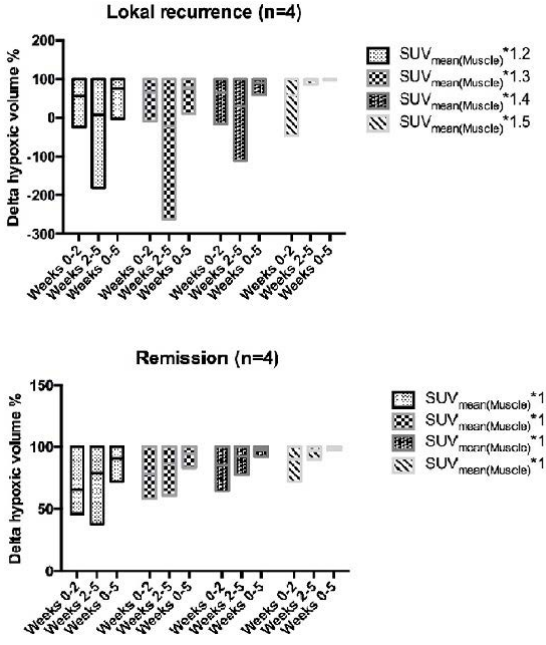
Finding the right threshold for determining hypoxic subvolumes in F-MISO-PET/CTs for HNSCC

H. Kerti[1], L. Majerus[1], A. Bunea[1], N. Wiedenmann[1], M. Mix[2], C. Stoykow[2], P.T. Meyer[2], A.L. Grosu[1]
[1]*University Hospital Freiburg, Department of Radiation Oncology, Freiburg, Germany*
[2]*University Hospital Freiburg, Department of Nuclear Medicine, Freiburg, Germany*

Purpose or Objective: Tumor hypoxia is a common feature of locally advanced head and neck cancer (HNSCC) that is associated with higher malignancy and increased radioresistance. Tumor-to-blood ratios≥1.2 are generally thought to indicate hypoxia. Nevertheless, previous studies use various thresholds to define tumor hypoxia. The following analysis tries to elucidate which threshold may be the most appropriate to determine hypoxic volume in respect to treatment success.

Material and Methods: A prospective study was performed to determine changes in tumor hypoxia during primary chemoradiation (pRCTx) of HNSCC at our institution. Tumor hypoxia was non-invasively assessed by [18F]-Fluoro-Misonidazole (F-MISO) PET/CT 2.5 h p.i. at baseline (week 0) and in week 2 and 5 of treatment, respectively. Hypoxic volumes (HV) were generated using thresholding at different levels of 1.2, 1.3, 1.4, 1.5 multiplied with the background-uptake, which was defined as SUVmean within the ipsilateral trapezium muscle, as advised by a nuclear-medicine specialist. Δ-values of decrease of HV (ΔHV) during treatment were obtained in weeks 0, 2 and 5 and correlated with local failure. As four patients showed local failure (LF), two groups of four patients each were made: four showing LF, four patients showing complete remission (CR). Before t-test analysis normal sample distribution was confirmes with Shapiro–Wilk test. Significance-level was defined as $p<0.005$.

Results: We analysed 4 patients without local failure in comparison to 4 patients with LF to show differences **Δ**f -values in weeks 0 to 2, 2 to 5 and 0 to 5 of the HV. All patients primarily treated for HNSCC with dRCTx were included. Each patient received a total dose of 70Gy in 35 fractions. Concomitant cisplatin chemotherapy was administered in weeks 1, 4 and 7. The mean follow-up time was 16.9 months (range: 10-22 months). Mean time to LF was 9.5 months (range: 6-15 months). For patients in CR allΔ -HV (mean) show proportional decrease in weeks 0 to 5. This is true for every threshold factor from 1.2 to 1.5. In those patients showing LF,Δ -HV (mean) demonstrates not only a decrease in HV but also some increase at each of the time increments. There is a general decrease (p=0.0073) between week 0 and 5, while between week 0 and 2 and 2 and 5, a rise inΔ -HV(mean) can be shown (p=0.2339, p=0.0649, respectively).



Conclusion: A decrease inΔ -HV (mean) was shown at any time point, for any factor the tumor-to-background-ratio was multiplied with, in patients with CR. In patients with LF, the hypoxic volume showed inconsistence over time, at least at one time of measurement there was an increase in hypoxic volume. The choice of the threshold for determination of hypoxic volume in FMISO-PET/CT remains a crucial question that could not be answered at this point. To elucidate this larger patient numbers are needed.

EP-1087

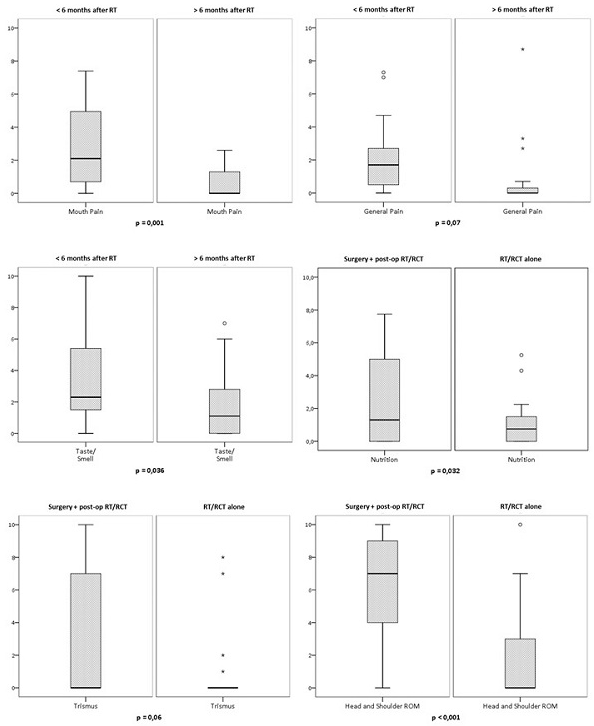
Screening for symptoms in HNC: Italian translation and validation of a patient-reported outcome

M. Maddalo[1], M. Buglione[1], L. Costa[1], N. Pasinetti[1], S. Tonoli[1], M. Urpis[1], L. Pegurri[1], S. Ciccarelli[1], F. Foscarini[1], F. Frassine[1], D. Tomasini[1], S.M. Magrini[1]
[1]*University and Spedali Civili- Brescia - Italy, Radiation Oncology, Brescia, Italy*

Purpose or Objective: The aim of this prospective observational study was to: (1) linguistically validate the Italian translation of the Vanderbilt Head and Neck Symptom Survey (VHNSS), a patient-reported outcome measure to screen for symptoms in the head and neck cancer (HNC) patients (pts) population; (2) perform a pilot test on the translated survey (VHNSS-IT) to assess the feasibility and utility, both for clinicians (cls) and for pts, of its administration in clinic as a symptoms' screening procedure.

Material and Methods: A multi-step linguistic process was conducted to generate and validate the VHNSS-IT: a forward translation, a backward translation and a patient testing (n = 35). For the pilot test 6 cls and 38 pts were recruited. Each pts completed the survey before the scheduled visit with the cls. Time to completion (TC), caregiver help (CH) and VHNSS-IT scores distribution reflecting symptom's intensity (SI) were recorded. The visit of the first three pts of each cls was performed per standard of care and the cls had to review the VHNSS-IT after the visit; time of revision (TR), perception regarding the acceptability of time burden, ease of use, and identification of potential problems that were previously unrecognized were reported. For the last three pts, cls were allowed to review the questionnaire during the visit, reporting the global perceived utility (GU).

Results: Two intermediate Italian versions were created during the process: the first Italian version derived from a reconciliation of three forward translations and the second Italian version derived from changes in the first version after the backward translation step. During the patient testing step only 2 pts reported problems with items comprehension and the rate of comprehension problems per single item was lower than expected: 2,9% in 16 items and 5,7% in 1 item. Pts could give suggestion in order to make items clearer and easier to understand: 43% of pts proposed a revision of the survey and most of these suggestions were retained. For the pilot test median TR was 2'15'. Time burden was perceived to be acceptable for all cls; they all also found the questionnaire easy to use. The rate of GU was 100%. Reviewing the survey, 4 of 6 cls identified symptoms unaddressed during the visit (swallowing problems, xerostomia, mucus, pain, speech and hearing problems). 30% of pts requested CH: these pts were significantly older (p < 0.001). Median TC was 6'57''. TC was related to age (p = 0.02), educational level (p = 0.023) and employment status (p = 0.004). Time after the start of the radiotherapy course (< 6 months vs > 6 months) and surgery (yes versus no) were considered as variables that could possibly influence average SI scores per subscale. Figure 1 shows relevant findings.



Conclusion: The VHNSS-IT represents a suitable instrument to screen for symptoms in Italian HNC pts treated with surgery and radio-chemotherapy and it can help cls to identify symptoms that require referral, education or intervention.

EP-1088

Is time from symptom to treatment a prognostic factor in stage III-IV head and neck cancer patients?

C. Furlan[1], J. Polesel[2], C. Gobitti[1], E. Minatel[1], E. Vaccher[3], L. Barzan[4], G. Grando[5], G. Franchin[1]

[1]*Centro di Riferimento Oncologico, Radiation Oncology, Aviano, Italy*

[2]*Centro di Riferimento Oncologico, Epidemiology and Biostatistics, Aviano, Italy*

[3]*Centro di Riferimento Oncologico, Medical Oncology, Aviano, Italy*

[4]*Centro di Riferimento Oncologico, Oncologic Surgery, Aviano, Italy*

[5]*Azienda Ospedaliera Santa Maria degli Angeli, Otorhinolaryngology, Pordenone, Italy*

Purpose or Objective: The impact of time from symptoms to treatment on survival of head and neck squamous cell carcinoma (HNSCC) patients has been investigated with conflicting results. This might be explained by the heterogeneity of studies with respect to stage and treatment modality. To reduce bias, this study focused on patients diagnosed with stage III-IV HNSCC managed with definitive chemo-radiotherapy to assess the effect of total interval and treatment delay on survival.

Material and Methods: Asingle-centre retrospective cohort analysis on 185 patients with stage III-IVHNSCC of oropharynx (n = 124), larynx (n = 36), and hypopharynx (n = 25)managed with definitive chemo-radiotherapy between 2008-2014 was performed. Patientscharacteristics included sex, age, smoke, Adult Comorbidity Evaluation (ACE-27),stage, tumor site, and HPV status (table 1). Treatment modalities includedconcomitant chemoradiation (CCRT, n = 33) for stage III patients, and inductionchemotherapy followed by radiotherapy (IC-CRT, n = 152) for stage IV patients.Total interval (time from first symptoms to the start of treatment) andtreatment interval (interval between the date of the pathology report and thestart of treatment) were defined in accord with the Aarhus StatementGuidelines. We chose